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White Paper on Machine Translation



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"Excellent" ★★★★★



WHITE PAPER ON MACHINE TRANSLATION

Innovations in the Translation Industry

The translation and language solutions industry has experienced substantial technological progress over the past 25 to 30 years – shifting from relying primarily on manual processes to utilizing and benefitting from technological advancements in software tools and systems. In fact, the translation and language industry has also become a major driver of this innovation.

For highly competitive and success-oriented language service providers (LSPs), these technological enhancements mean that it is no longer viable to solely offer “traditional” translation services performed by human linguists. Instead, LSPs have recognized the ongoing development of AI and its implementation in language solutions in the form of machine translation, or MT. Simply put, this is an automated process by which trained software translates one language (source language) into another (target language).

A primary force behind this has been globalization, or economically speaking, the process by which goods and services, capital and labor are traded on a global scale. Increased global access to high-speed internet and as well as the widespread availability of computer and web-based technologies have helped to accelerate this globalization to the point that machine translation has become vitally important throughout our industries as well as our culture. Just think - well known e-commerce websites, such as eBay, Alibaba, or Amazon enable goods to be sold all over the world in nearly any language without sellers actually needing any knowledge of the language or culture in which they market their products. Likewise, popular social media apps, like Facebook, Instagram, Twitter, and TikTok allow news feeds and communication to be displayed in a wide variety of target languages. All this is made possible by AI and machine translation software tools, e.g., Google Translate, DeepL, Amazon Translate, and many others.

As such, most businesses of today have shifted from focusing only on regional or domestic markets to scaling their mission and service offerings to the demands imposed by the relevant international markets and industries. For LSPs, this necessitates investing in and staying at the forefront of technological trends as well as broadening the scope of services they offer.

Weighing the Benefits and Shortfalls of MT

The main advantages of MT are shorter turnaround times and relatively lower cost compared to traditional human translation processes. To be able to benefit from machine translation, a source document must be in an electronic format the MT system can process, or it must be convertible to a compatible format. Any weakness of the source text, such as terminological inconsistencies, will be repeated by the MT system. Like translation memory tools, MT is based on lexicality and can handle orthography, although it can be prone to weakness in grammar.

Most MT systems are designed so they can be configured to certain domains or subdomains, such as the domain of engineering or the subdomains of mechanical engineering, electrical engineering, chemical engineering, etc. If the target language, domain, or subject matter of a source document is not available as a program option in a given MT system, the translation can either not be performed or may be of low quality.

MT is limited to certain major languages and the best MT is likely available for English, French, Italian, German, Spanish, as well as some other languages like Russian, Mandarin, Japanese, and Hindi. It would be very difficult, if not outright impossible, to produce intelligible machine translations in languages like Khmer, Kiswahili, or Navajo.

Script also poses a limitation for MT. Some languages can be written in several script systems like Armenian, which can be written in Armenian, Cyrillic and Roman script, but only one of these script options may be available in a given MT system.

Raw machine translation can also be weak in document formatting and recreating automatic tables of content.

Additionally, MT can produce inferior results in the following areas:

- Understanding context
- Understanding local, regional, or special terminology, and slang
- Understanding humor, irony, sarcasm, or satire
- Understanding cultural (in)appropriateness or register
- Use of correct grammar
- Use of proper concordance (verbs and adjectives must agree with gender, case, and the number of nouns they refer to)
- Use of correct register (level or mode of speech, i.e., the degree of formality of the written text or the shared common language of a particular group of people, e.g., lawyers or doctors)
- Reduplicating the original formatting of the source document

The probability of concordance errors grows when the language pair or at least one of the languages involved is not mainstream, for example tone languages, in which the meaning of a word may change with the way it is pronounced (Chinese, Kwe, Hottentot, etc.). That said, it is not possible to accurately predict what MT may not get right or to which degree the quality of the translation might diminish with respect to the source document.

How Apex's machine translation solution, ApexMT, can benefit businesses

Apex is certified to comply with ISO 17100:2015 and 18587:2017 quality standards and offers two Service Levels in conformity thereto – Service Level I and Service Level II.

Our Service Level I entails full human translation in accordance with the ISO 17100 quality standard at our standard list price and standard delivery timeframe. It comprises these four steps:

Human Translation + Bilingual Editing + Final Review + PM Project Compliance Review

Our Service Level II involves machine translation followed by human full post-editing in accordance with the ISO 18587 quality standard at significantly reduced turnaround time and cost., however, the quality of the translation will also be inferior to that of our Service Level I.

Service Level II is an option for cases where a large document needs to be translated extremely fast and/or where a lack of funds prohibits a Service Level I translation. It comprises these steps:

Machine Translation + Human Full Post-Editing + Final review + PM Project Compliance Review

This option can be beneficial if a client has a large document that needs to be translated, but the turnaround time and/or budget do not qualify for Service Level I. As an example, let's assume the source document is available in an electronic format that can be processed by our proprietary ApexMT system and the source word count is approx. 2 million English words to be translated into Spanish. Furthermore, the time available to complete this project is only two weeks.

A typical qualified professional translator translates roughly 2,500 words per day. An additional day per 10,000 words is typically required for bilingual editing. This means that one translator would need approx. 800 days to translate the source text with no time left for revision or proofreading. To translate 2 million words in 14 days would require a pool of almost 120 linguists working full time – all with more or less the same qualifications and subject matter knowledge – in addition to coordinators and a large project management staff. In this case there would still be no time left for revision. Not even a very large language service provider would be capable of assembling such a large task force on short notice. And even if the LSP had that many qualified translators on hand, they would have few to none remaining to work on other projects.

Further, let us assume that, against all odds, the LSP would be able to put a qualified task force together within a reasonable timeframe from the moment the client gives the go-ahead. Since the linguists involved in this project would have to work overtime and drop all other work commitments, they would need to be paid a higher rate than the standard rate. Merely the cost of such an undertaking would most likely be prohibitive. Moreover, the linguistic quality of the translations in this case would likely suffer due to the number of different linguists working on them, for example, through the use of inconsistent terminology.

Now, let us consider the benefit of using MT combined with Full Post-Editing as per ISO 18587. The machine translation itself would perhaps take a day or two and the remaining time could be used for full post-editing according to ISO 18587. The cost would be significantly lower than that of a standard translation at a standard turnaround time. The drawback: the machine translation may still have flaws (see item list above). This is a trade-off that might not be an option when you cannot compromise on quality – but it may be your only option when you are in a time crunch and/or do not have a permissive budget available to finance a top-quality human translation.

Apex will work with you to negotiate the terms of your project and, for example, how much time and/or cost you can save and how much translation quality you may have to forfeit for the faster turnaround time and/or lower cost as your needs and requirements may be different for each individual project.

Once an agreement regarding the MT compromise between [turnaround time reduction] + [cost reduction] vs. [translation quality reduction] has been reached between the client and Apex, this will be noted in writing in the form of a proposal, which will be a legally binding agreement once the client has accepted it.

If this is something you might need, please reach out to us at 800.634.4880 or info@apex-translations.com. We will be glad to discuss your project in detail and answer any questions you may have and assist your language needs.